

**REMARKS**

A petition to extend the time for response by two (2) months is enclosed herewith.

Claims 13-17, 19-25 and 26-38 were previously pending in the application and remain unchanged by the present Amendment.

Claims 13 and 33-38 stand rejected under 35 USC § 112, first paragraph, as being assertedly failing to comply with the written description requirement. Applicant asserts to the contrary that the present claims are fully supported by the specification.

Regarding the outstanding rejection based on 35 USC §112, first paragraph, the Applicant refers the Examiner to the following paragraphs of published application No. US 2005/0006436A1. Regarding Claim 13, reference may be had to paragraphs 0016, 0018 and 0019 for plurality of particles and having first pores therein wherein spaces between adjacent particles form second pores which allow for solids and liquids to enter therein. Reference may be had to paragraph 0016 for support of a binder for binding the particles together at contact points. Reference may be had to paragraphs 0023 and 0026 for the binder being a solution comprising one of an inorganic polymer and inorganic salt wherein the solution is formed with at least one of SiO<sub>2</sub>, TiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, ZrO<sub>2</sub>, SiC, Si<sub>3</sub>N<sub>4</sub>, and B<sub>2</sub>O<sub>3</sub>. Accordingly, claim 13 is fully supported by the specification.

Regarding Claim 33, reference may be had to paragraph 0026. Regarding Claim 34, reference may be had to paragraph 0016. Regarding Claim 35, reference may be had to paragraph 0016. Regarding Claim 36, reference may be had to paragraph 0013. Each of the foregoing dependent claims 33-36 recite one element so there is no need to catalog the elements and where they may be found for the dependent claims.

With respect to Independent Claim 37, reference may be had to paragraph 0017 regarding a plurality of particles having first pores therein with the particles comprising at least one of a metal oxide, a carbide, and a nitride. Reference may be had to paragraph 0016 for spaces between adjacent particles forming second pores which are larger than the first pores

such that the first pores prevent a solid or liquid entering therein. Reference may be had to paragraph 0019 for the second pores allowing for solids and liquids to enter therein. Reference may be had to paragraph 0023 for a binder for binding the particles together at contact points wherein the binder is formed with at least one of a metal oxide, a carbide, and nitride.

Regarding Claim 38, reference may be had to paragraph 0017 as applied to claim 37 above. Reference may be had to paragraph 0023 for a binder for binding the particles together at contact points wherein the binder forms a membrane surrounding the particles, wherein the binder is formed with at least one of a metal oxide, carbide and a nitride. Reference may be had to paragraph 0036 for the binder forming third pores which are smaller than the second pores such that the third pores prevent a solid or liquid from entering therein and the second pores allow for solids and liquids to enter therein.

As seen from the foregoing, the language of Claims 13 and 33-38 is fully supported by the specification of the present application and is therefore respectfully requested that the outstanding rejection of those claims based on 35USC Section 112, first paragraph, be withdrawn.

Substantively, the claims stand rejected under the cited prior art of record. Specifically, Claims 13-17, 23-25, 28-30 and 33-37 were rejected under 35 USC §102(b) as being anticipated by US Patent No. 3888790 to Chay '790 (Chay '790) or, in the alternative under 35 USC §103(a) as being unpatentable over Chay '790 in view of US Patent No. 6517899 to Hoke et al. (Hoke '899).

Claims 13-15, 17, 20-25 and 32-34 were rejected under 35 USC §102(b) as being anticipated by US Patent No. 3993597 to Stiles '597 (Stiles '597), or, in the alternative under 35 USC §103(a) as being unpatentable over Stiles '597 in view of Hoke '899 and US Patent No. 5051185 to Watanabe (Watanabe '185).

Claims 19 and 27 were rejected under 35 USC §102(b) as being anticipated by Chay '790 or, in the alternative under 35 USC §103(a) as being unpatentable over Chay '790 in view of Hoke '899.

Claims 16, 19 and 27-30 were rejected under 35 USC §102(b) as being anticipated by Stiles '597, or, in the alternative under 35 USC §103(a) as being unpatentable over Stiles '597 in view of Hoke '899 and Watanabe '185.

The thermal decomposition and thereby the self-cleaning power of conventional coatings of parts on or in cooking, roasting, baking, and grilling devices is limited, because the remnants of foodstuffs in the solid phase do not come in contact with sufficient amounts of oxygen which is required for the decomposition of the soils. To solve this problem, Applicants have discovered that by providing layers with structures into which the soils can enter into and spread out and by providing means by which the soils can receive oxygen, the soils are able to decompose, resulting in a longer lasting coating.

Independent Claim 13 recites a cooking, roasting, baking or grilling device having a substrate with a self-cleaning coating thereon. The coating includes a plurality of particles having first pores therein, wherein spaces between adjacent particles form second pores which allow for solids and liquids to enter therein; and a binder for binding said particles together at contacts points wherein the binder is a colloidal solution comprising one of an inorganic polymer and an inorganic sol, wherein the colloidal solution is formed with at least one of SiO<sub>2</sub>, TiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, ZrO<sub>2</sub>, SiC, Si<sub>3</sub>N<sub>4</sub>, and B<sub>2</sub>O<sub>3</sub>.

The prior art, particularly Chay '790 and Stiles '597, does not disclose, among other things, a binder which is "a colloidal solution comprising one of an inorganic polymer and an inorganic sol, wherein said colloidal solution is formed with at least one of SiO<sub>2</sub>, TiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, ZrO<sub>2</sub>, SiC, Si<sub>3</sub>N<sub>4</sub>, and B<sub>2</sub>O<sub>3</sub>" as recited in Claim 13. Chay '790 and Stiles '597 instead have binders which are formed without the use of an inorganic polymer or an inorganic sol. Additionally, both Chay '790 and Stiles '597 are silent with respect to forming second pores which allow for solids and liquids to enter therein. Moreover, while Chay '790 discusses forming ceramic catalysts having high porosity, Chay '790 is silent with respect to the size of the porosity and specifically with whether said pores prevent a solid or liquid from entering therein. Moreover the combination of both having pores in particles which prevent a solid or

liquid from entering therein and pores formed by spaces between adjacent particles which allow for solids and liquids to enter therein is not at all taught by any of the cited references.

Independent Claim 32 recites a cooking device having a substrate with a self-cleaning coating thereon which enables remnants of foodstuffs to be removed without mechanical action, with the coating having a structure formed from a plurality of porous particles having pores therein and an inorganic binder being temperature resistant up to about 500 degrees C, wherein the inorganic binder includes an inorganic colloidal solution having  $ZrO_2$  particles in liquid phase.

The prior art, particularly Stiles '597, Hoke '899 and Watanabe '185, do not disclose a substrate with a self-cleaning coating thereon as recited in Claim 32. More specifically, the prior art does not disclose, among other things, the coating having a structure formed from a plurality of porous particles having pores therein and an inorganic binder being temperature resistant up to about 500 degrees C, wherein the inorganic binder includes an inorganic colloidal solution having  $ZrO_2$  particles in liquid phase. Therefore, Applicants respectfully request allowance of independent Claim 32.

Independent Claim 37 recites a substrate with a self-cleaning coating thereon. The coating includes a plurality of particles having first pores therein, the particles comprising at least one of a metal oxide, a carbide, and a nitride, wherein spaces between adjacent particles form second pores which are larger than the first pores such that the first pores prevent a solid or liquid from entering therein and the second pores allow for solids and liquids to enter therein; and a binder for binding the particles together at contacts points, wherein the binder is formed with at least one of a metal oxide, a carbide, and a nitride.

The prior art, particularly Chay '790 and Stiles '597, does not disclose a substrate with a self-cleaning coating thereon as recited in Claim 37. More specifically, the prior art does not disclose, among other things, the coating having particles having first pores therein, wherein spaces between adjacent particles form second pores which are larger than the first pores such that the first pores prevent a solid or liquid from entering therein and the second pores allow

for solids and liquids to enter therein. Therefore, Applicants respectfully request allowance of independent Claim 37.

Independent Claim 38 also recites a substrate with a self-cleaning coating thereon. According to Independent Claim 38, the coating includes a plurality of particles having first pores therein, with the particles comprising at least one of a metal oxide, a carbide, and a nitride, wherein spaces between adjacent particles form second pores; and a binder for binding said particles together at contacts points, wherein the binder forms a membrane surrounding the particles, wherein the binder is formed with at least one of a metal oxide, a carbide, and a nitride, and wherein the binder forms third pores which are smaller than the second pores such that the third pores prevent a solid or liquid from entering therein and the second pores allow for solids and liquids to enter therein.

It should be noted that Chay '790 and Hoke '899, as well as Chay '790 and Watanabe '185 are improperly combined, and in any event, any combination thereof does not result in the present invention. Hoke '899 is directed to a process for coating a truck radiator that reduces pollution (Col. 1, lines 18-22). Although including a binder, there is no indication that the Hoke coating would withstand temperatures in excess of 500 degrees C. Figures 10-14 of Hoke '899 indicate performance to 100 degrees C while Figure 15 indicates performance to 130 degrees C. Further, the Hoke binders are gas permeable (Col. 2, lines 5-6) and not necessarily permeable to liquids and solids.

As cited in the Official Action, the Hoke coatings can be used as a primary binder precursor and high temperature paints, for example, for mufflers and smoke stacks. Nevertheless, mufflers and smoke stacks are not going to achieve temperatures of 500 degrees C under normal usage conditions. Further, while Hoke '899 refers to a completely inorganic network of Si-O-Si chains and a pigment binder, it is applied as a water-based silicone polymer emulsion. As applied, it is not an inorganic polymer. Therefore, the combination of Hoke '899 and Chay '790 as well as the combination of Hoke '899 and Stiles '597 is improper. It is therefore respectfully requested that the outstanding rejections of the claims based on any combination of Chay '790 and Hoke '899 is in error and should be withdrawn.

It should also be noted that Stiles '597 and Hoke '899, as well as Stiles '597 and Watanabe '185 are improperly combined, and in any event, any combination thereof does not result in the present invention. The Official Action asserts that Watanabe '185 teaches that it is known for particles that are water-insoluble with the pore size of the particles being less than 50,000 angstroms. Watanabe '185 is directed to an adsorbent of  $\beta_2$ -microglobulin in blood. Watanabe notes that the water-soluble particulate carrier may be porous in order to increase adsorption efficiency. It is desirable that the  $\beta_2$ -microglobulin enters deep into the pores of the porous particles. To this effect, the porous particles preferably have an average pore size ranging from 20 angstroms to 5,000 angstroms (Col. 9, lines 23-41).

The Official Action's generalizations of the teachings of Watanabe '185 ignore the differences in the respective scientific fields of Chay '790 and Stiles '597 patents and that of the Watanabe '185. There is no applicability of a particular carrier designed to take  $\beta_2$ -microglobulin deep into the pores of the porous particles and that of the current binder. Accordingly, Watanabe '185 has no application to the current field of endeavor and is, therefore, improperly combined with either Chay '790, Hoke '599, or Stiles '597. It is therefore respectfully requested that any rejections of the claims based on any combination of references with Watanabe '185 be withdrawn.

The prior art, particularly Chay '790 and Stiles '597, does not disclose a substrate with a self-cleaning coating thereon as recited in Claim 38. More specifically, the prior art does not disclose, among other things, the coating having a binder which forms third pores which are smaller than second pores such that the third pores prevent a solid or liquid from entering therein and the second pores allow for solids and liquids to enter therein. Therefore, Applicants respectfully request allowance of independent Claim 38.

For these and other reasons, Chay '790 and Hoke '899, either alone or in combination, do not teach or suggest the subject matter defined by independent Claims 13 and 37. Therefore, Claims 13 and 37 are allowable. Claims 13-17, 23-25, 28-30, and 33-36 depend from Claim 13 and are allowable for the same reasons and also because they recite additional patentable subject matter.

In addition, for these and other reasons, Stiles '597, Hoke '899 and Watanabe '185, either alone or in any combination, neither teach nor suggest the subject matter defined by independent Claims 13 and 32. Therefore, Claims 13 and 32 are allowable. Claims 13-15, 17, 20-25 and 32-33 all depend from Claim 13 and are allowable for the same reasons and also because they recite additional patentable subject matter.

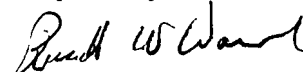
Moreover, for these and other reasons, Chay '790 and Hoke '899, either alone or in combination, do not teach or suggest the subject matter defined by dependents Claim 19 and 27. Therefore, Claims 19 and 27 are allowable. Claims 19 and 27 depend from Claim 13 and are accordingly allowable.

Further, for these and other reasons, Stiles '597, Hoke '899 and Watanabe '185, either alone or in any combination, neither teach nor suggest the subject matter defined by dependent Claims 16-19 and 27-30. Therefore, Claims 16-19 and 27-30 are allowable. Claims 16-19 and 27-30 all depend from Claim 13 and are accordingly allowable.

### CONCLUSION

In view of the above, entry of the present Amendment and allowance of Claims 13-17, 19-25 and 26-38 are respectfully requested. If the Examiner has any questions regarding this amendment, the Examiner is requested to contact the undersigned. If an extension of time for this paper is required, petition for extension is herewith made.

Respectfully submitted,



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